

Sewells Orchard Pond Repair Public Meeting

Presented by

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Howard County
Stormwater Management Division

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Today's Outline

- WHO? – Introduce County Team
- WHY? – Need for repair project
- WHAT? – Project goals, design requirements, and options, environmental input
- HOW? – Environmental and construction considerations
- WHEN? – Schedule and duration
- NEXT STEPS
- Q & A



Project Team

- County Dept of Public Works
- County Dept of Recreation and Parks
- Design Consultant
- Environmental Specialist
- Contractor

Why Are We Here?

- County originally prepared design plans for the pond repair project
- We heard that a number of people were unaware of the project or had concerns about the original design
- We put the project on hold and listened to the concerns
- We looked at other design options and other construction methods for addressing the concerns
- We are here tonight to provide an update to the community and show various options for getting this project done and to solicit your feedback

Project Need

- Triennial inspection showed corroding metal outfall pipe
- Potential for pond failure if nothing done



May 2018 Partial Dam Failure



Project Goals

- Public Safety
- Design must meet regulatory requirements
- Minimize impact to ecosystem, wildlife, and plant life – during and after construction
- Aesthetics – minimize visual impacts
- Minimize impact to pathways
- Minimize disturbances during construction

Environmental Considerations

Brenda Belensky, Natural Resource Conservation Manager

Department of Recreation & Parks role:

- Routine maintenance of the park amenities.
- Initiated aquatic weed management program in 2004.
- Natural Resource Management Plan completed in 2007. Describes & details conditions of the park's flora & fauna.
- Worked with various neighbors and volunteers to plant buffers, pick up trash, monitor water quality and control invasive plants.
- Work with MD DNR to maintain ponds for recreational fishing.
- Installed pond aerator systems in 2009.
- Floating wetland islands installed in 2010.

Environmental Considerations

- Work in partnership with Environmental Services who are the experts in engineering and stormwater management facilities.
- The Natural & Historic Resource Division's expertise is in managing the natural resources.
- So together and through the review process compromise needs to be reached to ensure the functionality of the ponds for storm water management, ecological benefits, recreational benefits and aesthetic benefits provided by the park natural resources.

Environmental Considerations

Mark Southerland PhD hired to provide independent environmental evaluation

- 30 years as consulting ecologist and past chair of Howard County Environmental Sustainability Board
- Conducted site visits, interviews, and research to evaluate current conditions and make suggestions for design and construction process
- Identified an in-line pond that has naturalized over 35 years to provide significant open water, wetland, and riparian habitats supporting many plant and animal species, both resident and migratory

Environmental Considerations

Four principles of an ecosystem approach:

- Minimize the loss of the animals and plants in the ecosystem
- Reduce to the extent possible the abundance of invasive species
- Maintain or increase the diversity, connectivity, and productivity of aquatic and riparian habitats
- Maintain or restore ecological processes like water quality and carbon sequestration

Environmental Considerations

Selected Recommendations:

- Minimize Loss – Avoid new pond configurations that would remove significant amount of riparian vegetation, especially trees
- Reduce Invasives – Minimize the opportunity for invasives to establish on disturbed soils by quickly establishing desirable or caretaker vegetation
- Increase Habitats – Create a series of aquatic benches in various locations and depths to provide new habitats for wetland plants and animals
- Improve Water Quality – Maintain the aerators currently operating in the pond to reduce low oxygen periods caused by algae blooms and aquatic plant decomposition

Design Requirements

- Must design repair for current requirements (HSCD review and approval)
- What's changed? Rainfall totals, soils mapping, metal pipes no longer allowed. Consider climate change.
- Impact of changes? Greater design flows into pond.
- No increase to flow rates out of pond; therefore need more storage volume in pond.
- Options for increasing storage volume:
 - Lower outlet pipe
 - Increase horizontal footprint
 - Increase vertical depth – raise dam or lower permanent pool

Overview of Optional Scenarios

[illegible]

Design Options

**Include an auxiliary spillway
(can be part of other options)**



PROS

- Lower final height of dam approx. 2.2' from originally proposed design

CONS

- Flows > 5 year storm will flow over pond pathway
- Existing 100 yr storm has 3.5' of flow
- Adding aux spillway to original design 100 yr storm has 2.2' of flow

Design Options

Increase horizontal footprint –

- Widen pond perimeter 5' horizontally w/ and w/o auxiliary spillway
- Widen pond perimeter 10' horizontally w/ and w/o auxiliary spillway

PROS

- No change in permanent pool elevation

CONS

- Removal of significant vegetative buffer around pond
- Only minor reduction in dam height from original design w/o auxiliary spillway

Design Options

Increase vertical depth – lower outlet pipe or raise dam

- Lower outlet pipe elevation – not feasible since outlet elevation already at existing channel elevation (No pros/cons below)
- Raise dam (Original Design)
- Raise dam w/auxiliary spillway

PROS

- No change in permanent pool elevation
- Minimum buffer vegetation removal

CONS

- Raises dam height by 4.25' (no aux. spillway) or 2' (with aux. spillway)
- More frequent flows across pond pathway with aux. spillway

Design Options

Increase vertical depth – lower permanent pool

- Lower permanent pool 1'
- Lower permanent pool 1' w/auxiliary spillway
- Lower permanent pool 2' w/auxiliary spillway

PROS

- Minimum impact to buffer vegetation
- Will help to reduce the dam height

CONS

- Minor increase in flow from pond.
- Creates shallow, possibly dry area at upper end and fringes of pond.

Design Options

Increase diameter of outlet pipe

- Existing metal pipe – 18” diameter
- Original design – 48” diameter
- Try a larger diameter pipe - 60” diameter

PROS

- Minimum impact to buffer vegetation
- No change to permanent pool elevation

CONS

- Small reduction in dam height due solely to pipe size change from existing design

Other Design Considerations

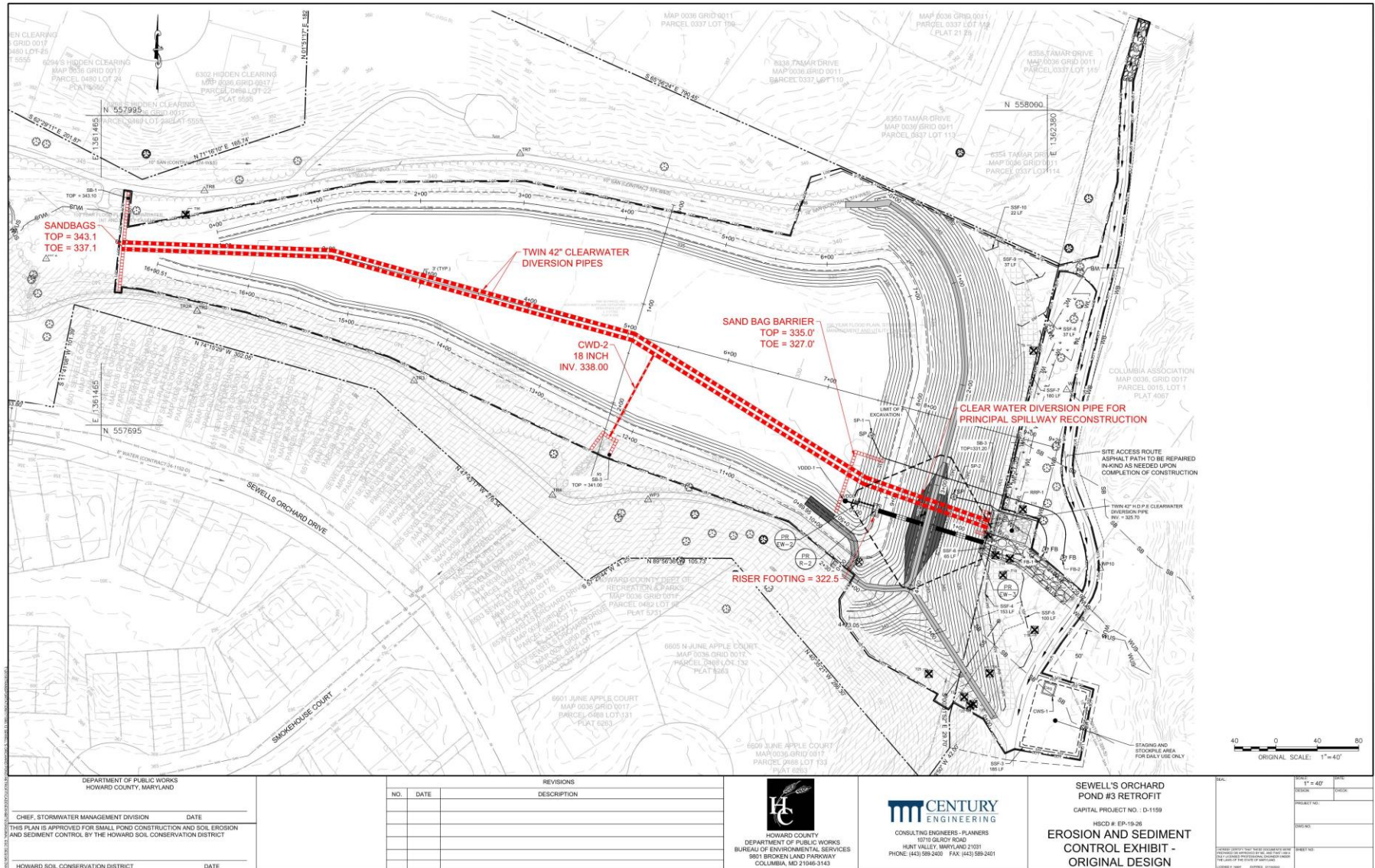
- Visible concrete riser structure with metal trash rack
- Reconstruct a new pier near southeast corner of pond
- Repair/repave pathways damaged by construction




Construction Considerations

- Elkhorn Branch Trail from Tamar Drive to pond will remain open (slightly narrowed)
- Create a dry work area for embankment and outlet structure work while minimizing impacts to ecosystem and wildlife as part of dewatering/construction activities
- Approval from DNR for this particular project to relocate fish from lower pond to middle or upper pond. Could be done manually early in construction process.

Construction Approach: Original Design



DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND		REVISIONS NO. DATE DESCRIPTION		 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENVIRONMENTAL SERVICES 9801 BROKEN LAND PARKWAY COLUMBIA, MD 21046-3143		 CENTURY ENGINEERING CONSULTING ENGINEERS - PLANNERS 10715 GLEBEY ROAD HERT VILLE VALLEY, MARYLAND 21031 PHONE: (443) 589-2400 FAX: (443) 589-2401		SEWELL'S ORCHARD POND #3 RETROFIT CAPITAL PROJECT NO. D-1159 HSCD # EP-16-26 EROSION AND SEDIMENT CONTROL EXHIBIT - ALTERNATE DESIGN		SHEET NO. 11 OF 407 DESIGN CHECK PROJECT NO. DATE SET SHEET NO.	
CHIEF, STORMWATER MANAGEMENT DIVISION DATE THIS PLAN IS APPROVED FOR SMALL POND CONSTRUCTION AND SOIL EROSION AND SEDIMENT CONTROL, BY THE HOWARD SOIL CONSERVATION DISTRICT											
HOWARD SOIL CONSERVATION DISTRICT DATE											

Construction Schedule/Duration

- Current estimate – 7 months (weather dependent)
- 5 days a week – 7:00 AM to 7:00 PM (max 9 hours/day)
- March 1 – June 15 stream closure period restriction for small area at pond outfall
- Better time of year to perform construction? Try to avoid Spring.

Proposed Landscape Plan





Summary of Options

Option	Originally Proposed Design	1	1B	2A	2B	3C	3B
Description	No aux spillway, same pond footprint and permanent pool elev, 48" outlet pipe	Aux spillway, same pond footprint and permanent pool elev, 48" outlet pipe	Aux spillway, same footprint and permanent pool elev, 60" outlet pipe	Aux spillway, lower permanent pool 1'	Aux spillway, lower permanent pool 2'	Aux spillway, expand pond footprint 5' average horizontal	Aux spillway, expand pond footprint 10' average horizontal
Safety Considerations With Water On Pathway Around Sewells Orchard Pond							
Maintain Same Amount of Flow out of Pond							
Visual Impacts (Height of Dam)	4.2'	2.0'	1.8'	1.3'	0.70'	1.7	1.6'
Visual Impacts (General Pond Aesthetics)							
Aquatic Resources (Final)							
Aquatic Resources (During Construction)							
Terrestrial and Avian Resources							
Use of Pathway (During Construction)							
General Impacts of Construction (Smells, sights, sounds)							

Next Steps

- Solicit public comments through November 18
- County to consider comments and decide on final design/ construction approach and tentative start date for construction
- County to send letter as well as reaching out to Village Board, HOA, CA with proposed design
- County to modify plans as needed and get revised regulatory approvals.
- Follow up public meeting – January 2023 (Optional)

Questions?

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[https://www.howardcountymd.gov/public-works/
community-involvement](https://www.howardcountymd.gov/public-works/community-involvement)

Option	Originally Proposed Design	1A	2	3	3A
Description	No aux spillway, same pond footprint and permanent pool elev, 48" outlet pipe	No aux spillway, same footprint and permanent pool elev, 60" outlet pipe	No Aux spillway, lower permanent pool 1'	No aux spillway, expand pond footprint 5' average horizontal	No aux spillway, expand pond footprint 10' average horizontal
Safety Considerations With Water On Pathway Around Sewells Orchard Pond					
Maintain Same Amount of Flow out of Pond					
Visual Impacts (Height of Dam)	4.2'	3.3'	3.2'	3.7'	3.6'
Visual Impacts (General Pond Aesthetics)					
Aquatic Resources (Final)					
Aquatic Resources (During Construction)					
Terrestrial and Avian Resources					
Use of Pathway (During Construction)					
General Impacts of Construction (Smells, sights, sounds)					

Option	definitions
Description	
Safety Considerations With Water On Pathway Around Sewells Orchard Pond	Green - no flow on pathway; Red - flow on pathways
Maintain Same Amount of Flow out of Pond	Green - no increase, Yellow - minor increase (<5 cfs), Red - Increase > 5 cfs.
Visual Impacts (Height of Dam)	Green - increase < or = 2', Yellow - increase >2' but < 3', Red - increase > 3'
Visual Impacts (General Pond Aesthetics)	Green - limited removal of buffer vegetation. Yellow - Less open water and more shallow marsh areas; Red - major removal of buffer vegetation.
Aquatic Resources (Final)	Green - Open water areas essentially the same after construction. Yellow - Open water characteristics changed (open water to shallow marsh). Red - Significant loss of open water.
Aquatic Resources (During Construction)	During Construction: Green - No impact to aquatic life. Yellow - minor impact to aquatic life. Red - Loss of all aquatic life.
Terrestrial and Avian Resources	Green - Pond ecosystem essentially the same after construction. Yellow - ecosystem characteristics changed from existing (e.g. open water converted to shallow marsh). Red - Loss of perimeter vegetation and/or loss of open water areas.
Use of Pathway during Construction	Green - all pathways open throughout construction. Yellow - a portion of the pathway around the pond closed for a portion of construction. Red - a portion of the pathway around the pond closed during entire construction.
General Impacts of Construction (Smells, sights, sounds)	Green - no noticeable impacts from construction. Yellow - minor/typical impacts from a construction project. Red - impacts greater than a normal construction site (e.g. night work)